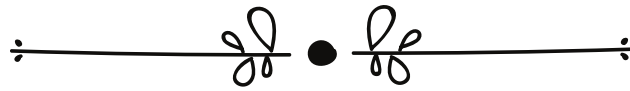


BIOHACK NOTES



PLANT GROWTH AND DEVELOPMENT

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



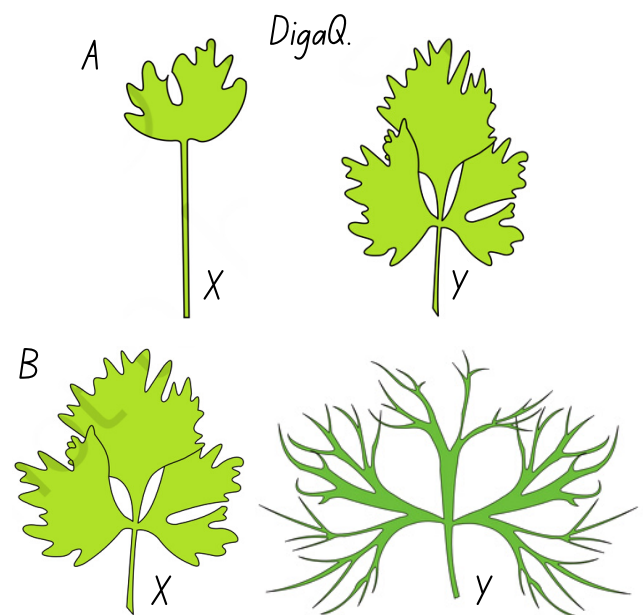
PARTH GOYAL





• INTRODUCTION

- 1) Development is the sum of the processes. Name them.
- 2) _____ is the most fundamental and conspicuous characteristic of living organisms.
- 3) First step in the process of plant growth is _____
- 4) Growth is determinate/indeterminate for higher plants.
- 5) Plants retain the capacity for unlimited growth throughout life. T/F
- 6) Swelling of a piece of wood when placed in water is growth or not ?
- 7) What is an open form of growth?
- 8) One single maize root apical meristem give rise to _____ no. of new cells per _____
- 9) Watermelons increase in size by up to _____ times.
- 10) The 3 phases of growth are -
- 11) Write 4 characteristics of meristematic cells.
- 12) Write 3 characteristics of cells in phase of elongation.
- 13) Zone of elongation can be detected by _____ method.
- 14) 2 characteristics of zone of maturation.
- 15) In $W = W_0 e^{rt}$, two other names of 'r' are -
- 16) _____ help in extension growth.
- 17) Plant growth and further development is linked to _____ status of the plant.
- 18) Nutrients two fxns.
- 19) To form tracheary element, the cells lose _____
- 20) They develop a very strong/weak, elastic/inelastic, _____ compound containing $1^\circ/2^\circ/3^\circ$ cell walls.
- 21) Young tree \rightarrow Dead mass. This is also development?
- 22) Heterophylly is seen in _____, _____, _____
- 23) Plasticity is an example of heterophylly. T/F
- 24) What is Plasticity?
- 25) _____ show heterophyllous development due to the environment.





• PLANT GROWTH REGULATORS

26) Indole compound example - (1)

27) Adenine derivatives - (2)

28) Derivative of carotenoids - (1) (NEET)

29) Terpenes ex - (1)

30) Gases (1)

31) Ethylene is largely a promoter/inhibitor of activities.

32) Charles Darwin and his son experimented on _____ (NEET)

33) Auxin was isolated by _____ from tip of coleoptile of _____

34) Foolish seedling disease is also called _____ disease.

35) Foolish seedling disease affects which plant ? (NEET)

36) Foolish seedling disease was caused by fungus _____

37) When rice plants were treated with sterile/fertile filtrate of *Gibberella* it caused bakanae disease.

38) _____ discovered Gibberlic acid.

39) From internodal segments of tobacco stems the callus proliferated only if, in addition to _____ the nutrients medium was supplemented with the 4 things. Name them.

40) _____ and _____ named cytokinesis promoting substance kinetin.

41) Tell the three names of ABA.

42) _____ confirmed the release of volatile substances from ripened oranges.

• Auxin

43) (Greek word) Auxin meaning ?

44) Auxin first isolated from _____

45) Auxin are generally produced by _____ (NEET)

46) Natural Auxin (2)

47) Synthetic Auxin (2)

48) Auxin helps to initiate rooting in stem cuttings. T/F

49) Auxin promote flowering in _____

50) _____ prevent fruit and leaf drop in early stages.

51) Auxin promotes abscission of _____ and _____

52) What is apical dominance ?

53) Auxin application (4)

54) Auxin effects (4)

55) Auxin is used to kill monocot/dicot plants

56) Auxin Induce parthenocarpy ex - 1. (NEET)

57) _____ is used in tea plantations.



• Gibberellins

- 58) There are more than _____ Gibberellins .
- 59) Gibberellins are reported from _____ and _____
- 60) Gibberellic acid _____ was one of the first gibberellins discovered and intensively studied.
- 61) Some but not all GA's are acidic. T/F
- 62) Length of grape stalks can be increased by _____
- 63) Gibberellins functions (6)
- 64) Gibberellins are applied to apples so that they _____ and _____ in shape.
- 65) Define bolting -
- 66) Bolting by Gibberellins is done in _____, _____, _____
- 67) Spraying juvenile _____ with GA hastens the maturity period.

• Cytokinins

- 68) Cytokinins were discovered as _____ from _____ fish ovum/ sperm DNA.
- 69) _____ do not occur naturally in plants.
- 70) Zeatin was naturally extracted from _____, _____ (NEET)
- 71) Natural cytokinins are found in _____, _____, _____ etc.
- 72) Cytokinin functions (6)
- 73) How does Cytokinin delay senescence ?
- 74) Cytokinin promotes apical dominance. T/F (NEET)

• Absciscic Acid

- 75) Absciscic acid functions (4) (NEET)
- 76) ABA is antagonist to - (NEET)
- 77) _____ is similar to adrenaline w.r.t. Function in plants and animals respectively. (NEET)
- 78) By inducing dormancy, ABA help the plant to withstand _____

• Ethylene

- 79) Etthepon is found in gas/ liquid/ solid form .
- 80) Ethylene is synthesized in large amounts by tissues undergoing _____ and _____
- 81) What is Respiratory climactic?
- 82) Most widely used PGR -
- 83) Most widely compound used as a source of ethylene is _____
- 84) Ethylene functions (12)
- 85) It hastens & fruit ripening in _____ and _____
- 86) It accelerates abscission in flowers and fruits. Ex--- 3
- 87) Etthepon is given in gaseous mixture. T/F
- 88) It promote female flower in _____
- 89) Synchronizing fruit set in _____ is done by _____





• PHOTOPERIODISM, VERNALISATION & SEED DORMANCY

- 90) The two external factors that affect initiation of flowering are _____ and _____ (NEET)
- 91) The response of plants to periods of day / night is termed _____
- 92) LDP means?
- 93) Plant having no correlation between exposure to sunlight and induction of flowering response are called _____
- 94) The site of perception of photoperiodism is _____
- 95) Hormonal substance hypothesized which is responsible for flowering is _____
- 96) Flowering can depend both quantitatively and qualitatively on low temperature. T/F.
- 97) The spring variety of _____, _____, _____ come to flower and produce grain before/after the end of growing season.
- 98) Vernalization prevent _____
- 99) Spring varieties are planted in spring. T/F
- 100) Winter varieties are planted in _____ season.
- 101) Winter varieties are harvested around _____ season.
- 102) Biennial plants are not monocarpic plants. T/F
- 103) Ex of biennial plants (3)
- 104) What is Vernalization?
- 105) Reasons which cause seed dormancy (5)
- 106) Effect of inhibitory substance can be removed by subjecting the seeds to _____ condition or by application of certain chemicals like _____ and _____
- 107) Changing environment conditions such as _____ and _____ are other methods to overcome seed dormancy.
-



PLANT GROWTH AND DEVELOPMENT



PARTH GOYAL



ANSWERS

• INTRODUCTION

1. Growth and Differentiation
2. Growth
3. Seed germination
4. Indeterminate
5. T
6. No
7. Form of growth where cells are constantly being added to the plant body.
8. 17,500 hour
9. 3,50,000
10. Meristematic, elongation, maturation
11. 1. Dense protoplasm
2. Prominent Nucleus
3. 1^o cell wall i.e. thin made up of cellulose, have numerous plasmodesmatal connections
4. High respiratory rate
12. 1. Large vaculation
2. Cell enlargement
3. New cell wall deposition
13. Parallel line
14. Cells of this Zone attain maximum size in terms of thickening and protoplasmic modification.
15. Rate or efficiency index
16. Turgidity of cells
17. Water
18. 1. Synthesis of protoplasm
2. Source of energy
19. Protoplasm
20. Strong elastic lignocellulosic 2^o
21. True
22. Cotton, Coriander, Larkspur
23. False
24. Plants follow different pathways in response to environmental phases of life to form different kinds of structure. This ability is known as plasticity.
25. Buttercup

• PLANT GROWTH REGULATORS

26. IAA (indole-3-acetic acid)
27. N⁶ -Furfurylamine purine, Kinetin
28. ABA
29. Gibberellic acid
30. Ethylene
31. Inhibitor
32. Canary grass
33. F. W. Went , Oat seedling
34. Bakane
35. Rice
36. Gibberella fujikuroi
37. Sterile
38. E. Kurosawa
39. Auxin ,
 1. Extract of vascular tissue
 2. Yeast extract
 3. Coconut milk
 4. DNA
40. Skoog, Miller
41. Inhibitor - B, Abscission - II, Dormin
42. Cousins
 - Auxin
43. to grow
44. Human urine
45. Shoot and Root tip
46. IBA, IAA
47. NAA, 2,4 D (2,4 Dichloro phenoxy acetic acid)
48. T
49. Pineapples
50. Auxin
51. Older leaves and fruits
52. Inhibition of growth of lateral bud due to apical bud



PARTH GOYAL

53. 1. Flowering
2. Rooting
3. Parthenocarpy
4. Herbicide
54. 1. Abscission prevention
2. Apical dominance
3. Cell division
4. Xylem differentiation
55. Dicot
56. Tomato
57. Decapitation

• Gibberellins

58. 100
59. Fungi and higher plants
60. GA₃
61. False
62. Gibberellic acid
63. 1. Increase the length of grape stalks
2. Maintain and shape and elongate different fruits ex apples
3. Delay senescence
4. Speed up Malting industry
5. Used to increase length of sugarcane
6. Bolting
64. Elongate and improve
65. Internodal elongation just before flowering
66. Beet Cabbage and many plants with rosette habit
67. conifers

• Cytokinins

68. Kinetin, autoclaved herring, sperm
69. Kinetin
70. Corn kernels, coconut milk
71. Root apices Developing shoot buds, young fruits

72. 1. Cell Division
2. Delay senescence
3. Promote growth of lateral buds
4. Produce new leaves
5. Produce chloroplast in new leaves
6. Adventitious shoot formation
73. By nutrient mobilisation
74. False

• Absciscic Acid

75. 1. Promote abscission
2. Inhibit seed germination (Seed dormancy promoted)
3. Stimulate closure of stomata
4. Increase tolerance of plant to various stress
76. GA
77. ABA
78. Desiccation

• Ethylene

79. Liquid
80. Senescence, ripening fruits
81. Rise in respiration rate during ripening of fruits
82. Ethylene
83. Etephone
84. 1. Horizontal growth of seedlings
2. Swelling of axis
3. Apical hook formation dicot seedlings
4. Promote Senescence and abscission
5. Fruit ripening
6. Increase respiratory rate
7. Break dormancy in seeds and buds
8. Sprouting of potato tuber
9. Rapid Internodal elongation / Petiole elongation in deep water rice plants
10. It help leaves, upper part of shoot to remain above water

11. Root growth and root hair elongation

12. Initiate flowering

85. Tomato and apple

86. Thinning of cotton, cherry, walnut

87. F

88. Cucumber

89. Pineapple, ethylene

• PHOTOPERIODISM, VERNALISATION & SEED DORMANCY

90. Light and temperature

91. Photoperiodism

92. They require exposure to light for a period exceeding a well defined critical duration

93. Day neutral plants

94. Leaves

95. Florigen

96. True

97. Wheat, barley, rye

98. Precocious reproductive development late in growing season

99. True

100. Autumn

101. Mid summer

102. False

103. Sugarbeet, Cabbage, Carrot

104. It is the promotion of flowering by the period of low temperature

105. 1) Impermeable and hard seed coat

2) Chemical inhibitors like - abscisic acid, phenolic acids, para-ascorbic acid

3) Immature embryos

106. Chilling, gibberellic acid and nitrates

107. Light, temperature

• DigaQ

Heterophylly

A - Larkspur: X - Juvenile, Y - Adult

B - Buttercup: X - Terrestrial, Y - Water habitat



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CAN CREATE MORE SUCH QUALITY
CONTENT FOR YOU!

JUST ₹10-20 WILL BE APPRECIABLE! :)



PARTH GOYAL